



BREW CENTER COFFEE BREWING SYSTEMS



MODEL #'s

Singles

BC301

BC1

BC120

BC240

Twins

BC302

BC2

OPERATION MANUAL

Specifications

Installation & Operating Instructions

Adjustments

Care & Maintenance

Wiring Diagram

Replacement Parts List

SPECIFICATIONS

	BC120	BC240	BC1	BC2	BC301	BC302
CAPACITY:	Selective	Selective			Selective	Selective
Cups/Brew Cycle	12/24	12/24	1 x36	2x36	12/24/36	12/24/36
Cups/Hour	120	200	240	400	240	400
ELECTRICAL DATA:						
Volts	120	120/240	120/240	120/240	120/240	120/240
Watts	1800	3120	4120	6230	4140	6280
Amps	15	13	18	27	18	27
DIMENSIONS (Inches)						
Height*	31	31	31	31	31	31
Width	9	9	9	18	9	18
Depth	20 ¹ / ₂	20 ¹ / ₂	20 ¹ / ₂	20 ¹ / ₂	20 ¹ / ₂	20 ¹ / ₂
Ship Weight (lbs.)	65	65	65	110	65	110

*Height includes 4" legs. All units require 3/8" water connection.

All Brew Centers are single phase with 3 wires plus a ground; except BC120 is 120V, with cord and plug, 15 Amp wall outlet required (NEMA #5-15R).

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N831A

INSTALLATION AND OPERATING INSTRUCTIONS

Warranty is void if the Brewer is connected to any voltage other than voltage specified on the data label of the Brewer.

UNPACKING AND INSPECTION

Carefully unpack the Brewer by cutting the straps and lifting the sleeve carton off the Brewer.

ASSEMBLY AND SET-UP

The Brewer is shipped complete with:

DESCRIPTION	BC1,120,240,301	BC2,302
Adjustable legs	4	4
Carriers complete with Faucets and Covers	1	2
Funnels with wire baskets and sample filter pack	1	2

Remove carriers from Brewer, one has the four (4) legs packed inside. Install legs by tilting Brewer on it's back and screwing the legs into the threaded leg support openings on bottom.

WATER HOOK UP

The National Sanitation Foundation (NSF) requires the following for the NSF approved installation:

1. A quick disconnect water connection or enough extra coiled tubing (at least 2x the depth of the unit) so that the Brewer can be moved for cleaning underneath.
2. An approved flow-back prevention device such as a double check valve to be installed between Brewer and water supply.

WATER CONNECTION

The Brewer comes equipped with a 3/8 compression water inlet fitting located in the back. Use a 3/8 diameter copper tubing to connect the Brewer to a cold water supply, water pressure should be 20 psi min. to 80 psi max. An external shut-off valve and a water filtering system with a charcoal filter is highly recommended.

ELECTRICAL CONNECTIONS

A terminal block inside the base compartment is provided for electrical connections. Two (2) ³/₁₆" diameter openings for field conduit connections are provided in the bottom and the back of the base.

To access the Terminal Block, loosen the 2 screws on the side of the base cover and remove the 1 lower screw at the base of the rear panel. Dis-engage base panel from rear panel by lifting base panel up and lifting back towards rear panel.

RECOMMENDED WIRING SIZES

<u>Model No.</u>	<u>Single (1) Phase</u>
BC1, BC120, BC240, BC301	12 AWG
BC2, BC302	10 AWG

Note:

1. Neutral (N) and Ground Wires to be 14 AWG minimum.
2. Field wiring must be suitable for 75° C.
3. Use Copper wire only for all power supply connections.

INITIAL PRIMING - Filling of Tank

The BC Brewers are shipped with the Thermostat in the **OFF** position. Do not turn Thermostat to the **ON** position until the Brewer has been fully primed.

1. Turn water supply on and check for leaks at the water inlet connections. Tighten compression fitting if necessary.
2. Turn on power to the Brewer. The Brewer will automatically start filling. After 6 minutes the filling cycle will stop and the thermostat should be turned clockwise to the full **ON** position. Allow

approximately 20 minutes for the brewer to reach full brewing temperature (197°-203°). When the GREEN READY LIGHT comes ON the brewer is ready to brew the next batch of coffee.

NOTE: Before proceeding further, make sure the sample filter pack has been removed from the funnel.

CHECKING BREW CYCLE OUTPUTS.

The BC-Series brewers are factory preset to deliver the proper amount of brewing water for the 12 cup, 24 cup and 36 cup brew cycles. Nevertheless, it is a good practice to check the output levels prior to brewing the first batch of coffee.

BC1 and BC2: Full 36 cups (3 decanters) per brew cycle with a 20% by-pass.

BC120 and BC 240: Selectively 12 cups (1 decanter) or 24 cups (2 decanters) per brew cycle. No by-pass.

BC301 and BC302: Selectively 12, 24 and 36 cups per brew cycle with a 20% by-pass for the 36 cup cycle only.

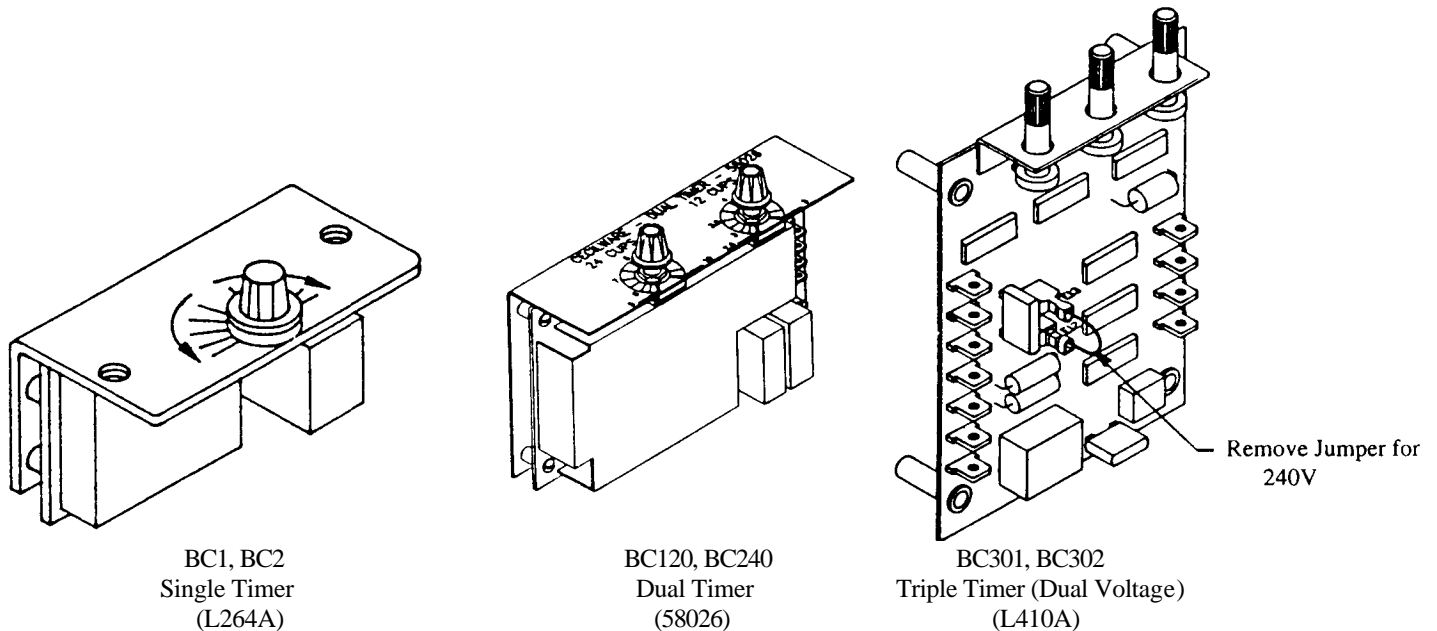
TO START A BREW CYCLE:

Turn Warmer Switch to the ON position. The Warmer Switches also double as CYCLE STOP switches. With Funnel and Carrier in place activate GREEN BREW switch.

On BC120, BC240, BC301 and BC302 brewers first activate brew switches marked 12 cups and then check output. Do the same with the 24 cup brew switch and the 36 cup brew switch for the BC301 and BC302 units.

NOTE: 12 cups equal 1 full decanter.

If necessary adjust the timer(s) to increase or decrease output levels. See Timer adjustment procedure.



Brew Timers Figure 1

TIMER ADJUSTMENT PROCEDURE. (Refer to Figure 1)

Remove the top cover to access the brew timer(s).

To INCREASE output: turn timer knob a small increment CLOCKWISE.

To DECREASE output: turn timer knob a small increment COUNTER-CLOCKWISE. Check output level in carrier.

COFFEE BREWING INSTRUCTIONS

Place filter paper into brew basket and add recommended amounts of finely ground coffee as per chart below:

MODEL #	#CUPS BREWED	RECOMMENDED COFFEE AMOUNT	TOTAL BREW TIME
BC1	36 Cups	6 oz.	6.0 Minutes
BC2	36 Cups	6 oz.	6.0 Minutes
BC120	12 Cups	2oz.	3.0 Minutes
BC240	24 Cups	4 oz.	4.5 Minutes
BC301 and BC302	12 Cups	2oz.	3.0 Minutes
	24 Cups	4 oz.	4.5 Minutes
	36 Cups	6 oz.	6.0 Minutes

Insert brew funnel back into brewer and position empty carriers under brew funnels. With **Warmer Switches** on (lit), depress **Green Brew Switches**. Total brew time will vary according to cups selected. After funnel stops dripping, remove and empty funnels.

Warning: Remove Brew funnel ONLY after it has stopped dripping.

BY-PASS Flow Adjustments (See figure 2)

Depending on the model number, the BC Brewers have been factory set to brew 12, 24 and/or 36 cups of coffee, with the BY-PASS adjusted for a 20% BY-PASS flow of brewing water for the 36 cup, brew output only. Since water hardness, the brand of coffee, and the length of brew time are important factors in final drink taste, it may be necessary to adjust the percentage of BY-PASS. In general, the more ground coffee used for each brew, the higher the percentage of BY-PASS. Proceed as follows to adjust BY-PASS.

1. Place empty carrier without cover under brew funnel.
2. Pull brew funnel out 3 inches, exposing BY-PASS outlet behind funnel.
3. Activate warmer/cycle stop switch. Switch will be lit.
4. Hold measuring cup under BY-PASS outlet and activate Green Brew Switch. After 15 seconds, push warmer/cycle stop switch to stop cycle.
5. Measure ounces of water in cup and ounces of water in carrier. Divide ounces in cup by total volume dispensed (add ounces in cup and carrier) to get the BY-PASS ratio.

6. To get more BY-PASS, turn slotted adjustment screw in spray-head adjuster (Item 49 in parts list) **counter-clockwise**. Turning adjuster screw **clockwise** will **decrease** the BY-PASS flow.

SPRAY-HEAD ADJUSTER

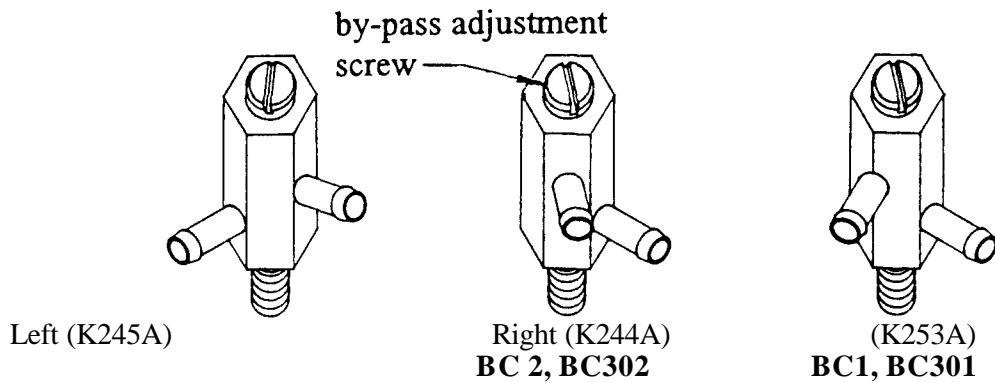


FIGURE 2

The **BC310** and **BC302** units do not use a BY-PASS for 12 and 24 cup brewing. The BY-PASS valve is activated only when the 36 cup cycle is selected. The **BC210** and **BC240** models only brew 12 or 24 cups and therefore do not use a BY-PASS.

THERMOSTAT ADJUSTMENT (See Figure 3)

The BC Brewers are factory set to deliver hot brewing water at 200° F (96° C) when the thermostat knob is turned on to the full **ON** position.

THERMOSTAT

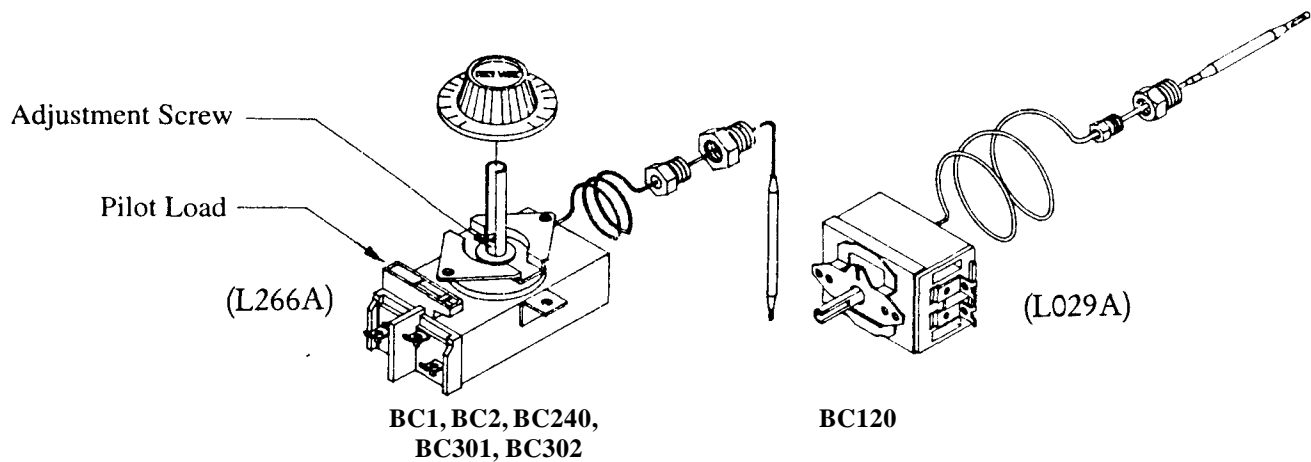


Figure 3

The water temperature, at the spray head, should be between 195° F-203° F with the thermostat knob at its maximum clockwise position. If adjustment is necessary, proceed as follows:

1. To **RAISE** water temperature, turn temperature control knob to its maximum clockwise position. Remove the knob and locate slotted adjustment screw inside hollow thermostat shaft. Using a narrow-bladed screwdriver, engage slotted adjustment screw and turn it 1/4 turn counter-clockwise. The thermostat will cut in and the **Green** ready light will go off. When **Green** ready light comes on after a few minutes, measure temperature and repeat if necessary.

2. To **LOWER** water temperature, simply turn knob one notch **counter-clockwise** to next lower number on dial.

HINT: *To measure water temperature accurately, remove the spray-head for a solid water stream.*

SOLID STATE WATER LEVEL CONTROL AND PROBE

WATER LEVEL CONTROL OPERATION

Components involved:

- | | | |
|--|------|---------|
| 1. Solid state water level control board | Part | #L398A |
| 2. Water inlet valve | Pan | # L397A |
| 3. Water level probe | Part | #K213A |
| 4. Hi-level float switch | Part | #L380A |

Under normal conditions and operation, the water level in the tank should not drop more than 1/2" from the probe. If it does, the tank is not being re-filled fast enough. Check the water line and water filter, they may need cleaning or replacing.

PROBLEM: NO WATER IS GOING TO THE TANK AT ALL!

WATER INLET VALVE TEST

Turn power off. If the water level rises inside the heating tank, the water inlet valve is leaking. Disconnect wires from the water inlet valve coil and connect a 2 wire lamp cord to the terminals. Plug it into a 115V outlet. If water flows in and stops when you pull it out, the valve is working fine. Repeat this test a few times. The problem may be in the probe or water level board.

If the water does not flow in when the cord is plugged into an electrical outlet, the solenoid coil may be burned, opened or the valve may have been an obstruction preventing the water from flowing in. Clean or replace it.

HI-LEVEL FLOAT SWITCH

For BC2 and BC302 units with hinged Hi-level Float Switches, (See figure 4a)

Remove tank cover and check position of Hi-Level float switch inside tank. The hinged part of the float switch must face up as shown in Figure 4a. The BC1, BC120, BC240, and BC302 units have ball type level detectors as illustrated in Figure 4b; the ball resting on the retaining clip is shown.

HI-LEVEL FLOAT SWITCH

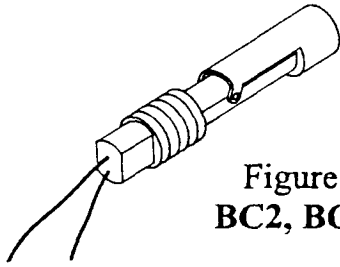


Figure 4a
BC2, BC302

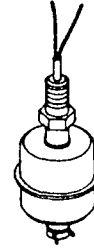


Figure 4b
BC1, BC120, BC240, BC301

The float switch acts as a guardian for the solid state level control and its probe. If they malfunction and cause the water inside the tank to rise, the float switch will prevent flooding by terminating the power to the solid state control board and the water inlet valve.

PROBE TEST (Figure 5)

If lack of water conditions remain the same, check the probe as follows:

Turn on the power to the brewer. Check inside the heating tank to make sure the water is not touching the probe. Pull wire and terminal out of the probe rod.

If water still does not flow after the wire is disconnected from the probe, the problem may be in the solid state water level board.

If water starts flowing into the tank, the probe may be grounded due to excessive liming. Check with Ohm meter. Clean or replace probe.

PROBE

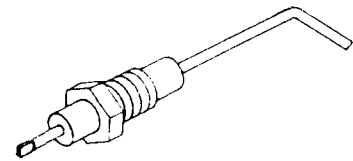


Figure 5

Check the board as follows:

- A) Make sure there is power input to the board at the terminals 2 & 3, see Figure 6. Your voltmeter should read 115 volts. It should read the same at terminals 1 & 3. This is the output power to electrify the coil of the solenoid valve to open it. The lack of voltage at terminals 2 & 4 will indicate that the water level board is not working properly.
- B) Make sure all wire connections to the board are tight.
- C) The grounding plate at the top, in the back of the board, should be securely grounded. The board will not work, or will work erratically, if it is not grounded properly. If after this, the board is still failing to open the water inlet valve, then replace it.

SOLID STATE WATER LEVEL CONTROL

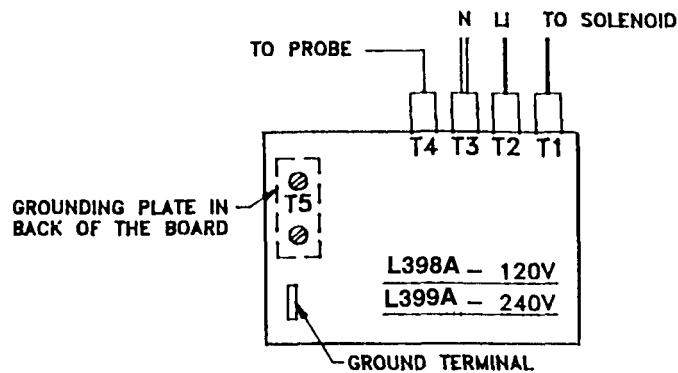


Figure 6

PROBLEM: WATER WILL NOT "STOP" FLOWING INTO THE HEATING TANK

Follow the same procedure as above but in reverse order. Check the Water Level Probe, Solenoid and level controls.

WATER INLET VALVE TEST (FIGURE 7)

Turn off all power to the brewer. Observe the water level inside the heating tank. If it rises, the water inlet valve is leaking. Rebuild using Valve kit #99371 or replace inlet valve.

Figure 7
Water Inlet Valve (Item 4)

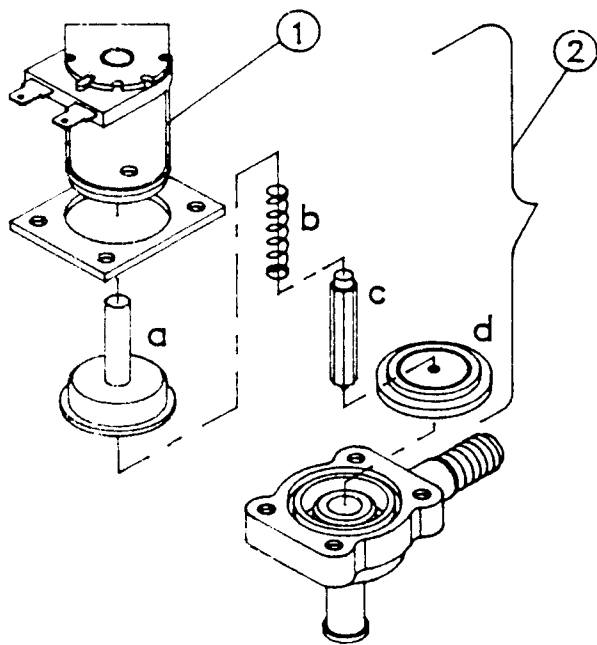
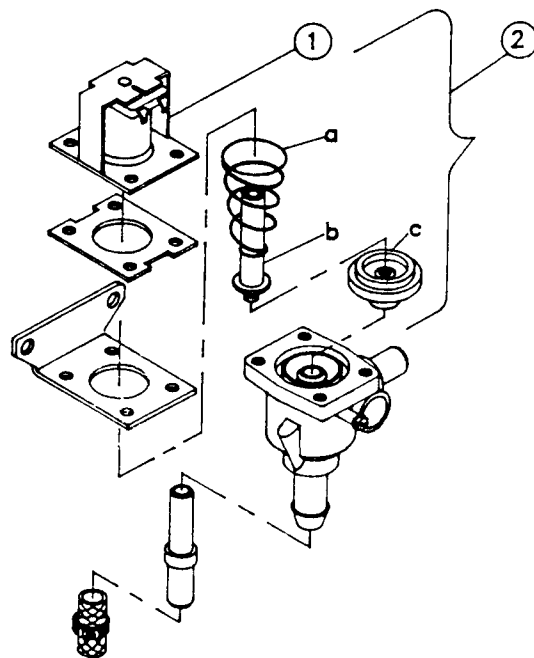


Figure 8
Dump Valve (Item 32)



REPLACEMENT KITS

WATER INLET VALVE

1 - Coil, 120V - Part #X008A

Coil, 240V - Part #C223A

2 - Valve Kit - Part #99371

- | | |
|-----------|--------------|
| a) Guide | c) Armature |
| b) Spring | d) Diaphragm |

DUMP VALVE & BY-PASS VALVE

1 - Coil, 120V – Part #CA39A

Coil, 220V – Part #CA38A

2 - Valve Kit - Part #X079A

- | | |
|--------------|------------|
| a) Spring | c) Plunger |
| b) Diaphragm | |

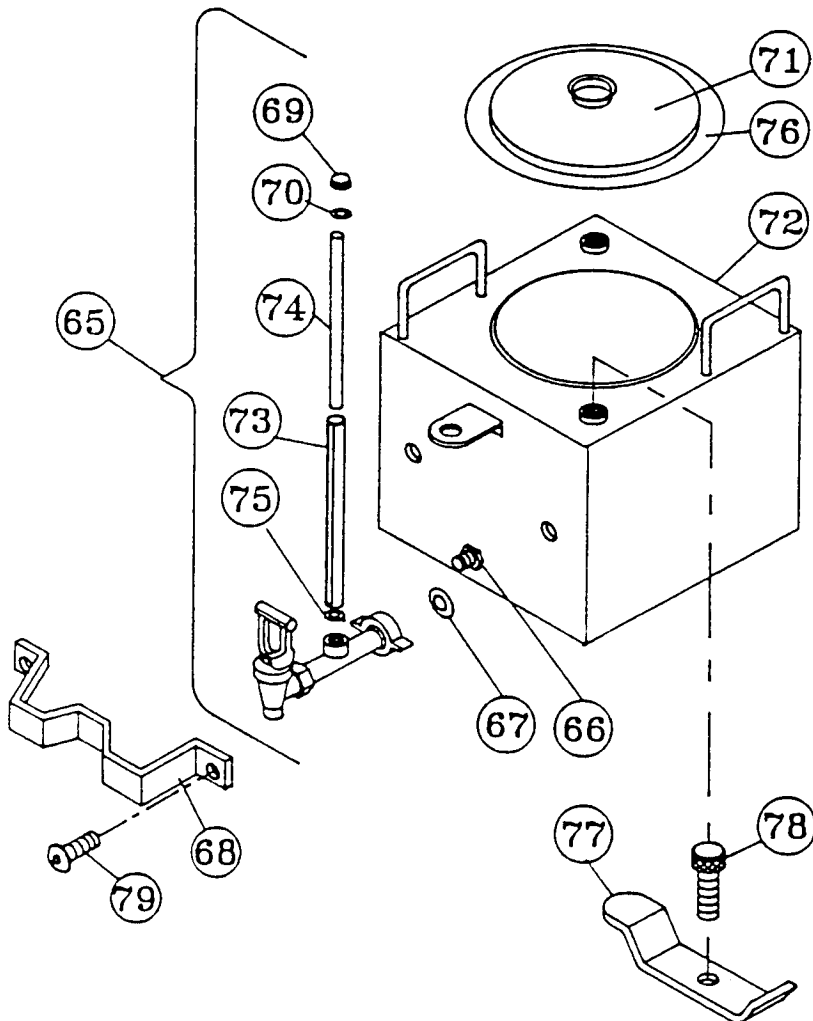
PROBLEM: SPRAY-HEAD WILL NOT STOP DRIPPING OR RUNNING

DUMP VALVE TEST (Figure 8)

Turn off all power to the Brewer. If dripping or running continues, replace naive plunger, spring and diaphragm using Valve Kit #X079A or simply replace with new dump valve.

CARRIER

<u>Fig.</u>	<u>Description</u>	<u>Part#</u>
65	Faucet Shank Assembly	994461X
66	Faucet Hex Nut	03067
67	Faucet Washer	7227
68	Faucet Guard	U812A
69	End Cap	38314
70	Washer, Endvap	38317
71	Carrier Cover	U811A
72	Carrier	97208
73	Sight Gauge Shield	38316
74	Sight Gauge Glass	38315
75	Washer, Base	38318
76	Gasket, Cover Carrier	M294A
77	Hold Down Bracket	U833A
78	Thumb Screw	M299A
79	Screw	P808A



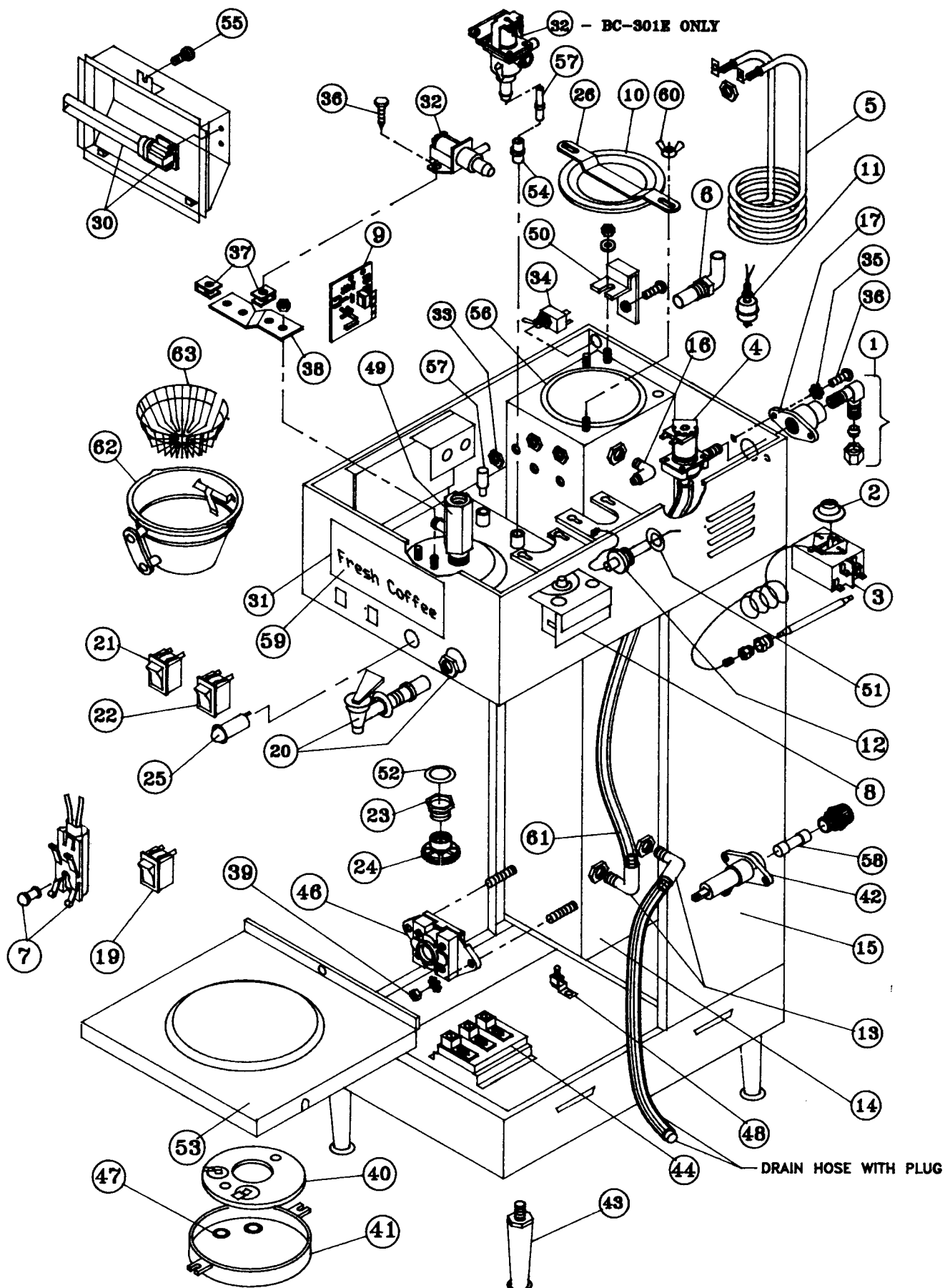
BC1, BC120, BC240, BC301 PARTS LIST

<u>FIG. #</u>	<u>DESCRIPTION</u>	<u>PART#</u>	<u>FIG.#</u>	<u>DESCRIPTION</u>	<u>PART#</u>
1	90 Degree Elbow	K021A	45	Ballast 120V	CA33A
2	Thermostat Knob	M008A	46	Hi-Limit Switch	M060A
3	Double Pole Thermostat (BC1, BC240, BC301)	L029A	47	Grommet	M090A
	*Single Pole Thermostat (BC120)	L266A	48	Ground Lug	B081A
4	Water Inlet Valve 1 GPM 120V	L397A	49	Spray-Head Adjuster (BC1, BC301)	K253A
5	Heater 4000W/240V (BC240, BC301, BC1)	G044A		*Spray Head Adjuster (BC120, BC240)	K282A
	*Heater 1700W/120V (BC120)	G045A	50	Tank Bracket	U856A
6	Overflow Tube Assembly	H024A	51	Washer Red Silicon	M197A
7	Indicator Light (BC120, BC240, BC301)	32004	52	Gasket	M121A
8	Single Timer, 120V (BC1)	L264A	53	Top Warmer Cover Assembly	R615A
	*Dual Timer, 120V (BC120, BC240)	58026	54	Silicon Tubing (BC301)	M319A
	*Triple Timer, 120V (BC301)	L410A	55	Screw	P811A
9	Water Level Sensor, 120V	L398A	56	Tank Gasket	M289A
10	Water Tank Cover	U801A	57	By-Pass Reducer	H218A
11	Hi-Level Float Switch	E003A		*By-Pass Reducer (BC301)	H221A
12	Water Level Probe Assembly	K213A	58	Fuse 6 Amps	C395A
13	Hose Barb Elbow 3/8"	K270A	59	Logo Plate Fresh Coffee (BC1)	N819A
14	Water Tank	R617A		*Logo Plate Fresh Coffee (BC120, BC240)	N829A
15	Tower, Base and Top Wrap Assembly	N/A		*Logo Plate Fresh Coffee (BC301)	N822A
16	Hose Barb Elbow	K246A	60	Wingnut	P810A
17	Flanged Coupling 1/4 NPT	K275A	61	Hose	M313A
19	Power Switch (BC120, BC240, BC301)	L389A	62	Funnel	97502
20	Faucet	D067A	63	Wire Basket	75057
21	Green Brew Switch, 120V	L383A			
22	Heat Switch, 120V	155A			
23	Lock Nut	E007A			
24	Spray Cup	E084A			
25	Ready Light	CA34A			
26	Hold Down Bracket	U860A			
30	Light Component Kit	44431			
31	Clear Plastic Panel	U907A			
32	Dump Valve, 120V	80240			
33	Lock Nut	K048A			
34	Toggle Switch	L069A			
35	Washer	P072A			
36	Screw	P050A			
37	Clip	P126A			
38	Dump Valve Bracket	U857A			
39	Hexnut	P026A			
40	Warmer Element 120V/100W	G108A			
41	Heat Shield	U485A			
42	Fuse Holder	C396A			
43	Legs 4" Adjustable	M005A			
44	Terminal Block	B083A			

**Note-All parts are common to all machines
except where listed in description**

220V/240V Components For Export

4	1 GPM Solenoid	L426A
8	Single Timer (BC1)	L263A
9	Level Control	L399A
19	Power Switch (BC240, BC301)	L424A
21	Green Brew Switch	L401A
22	Heat Switch	L155A
32	Dump Valve	80249
40	Warmer Element 100W	G107A
45	50Hz Ballast (BC1)	C045A
	*60Hz Ballast (BC1)	C046A



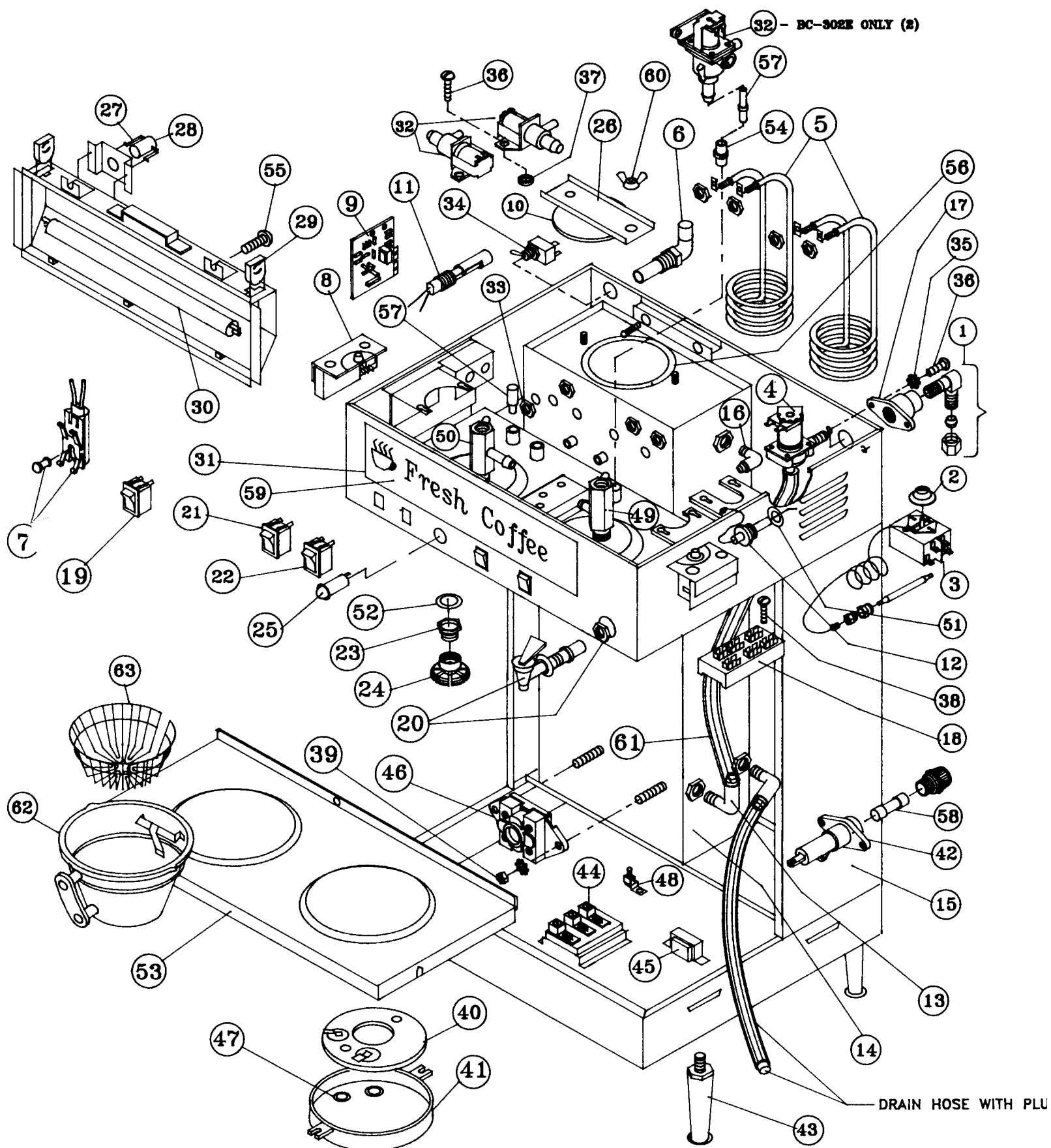
BC2 AND BC302 PARTS LIST

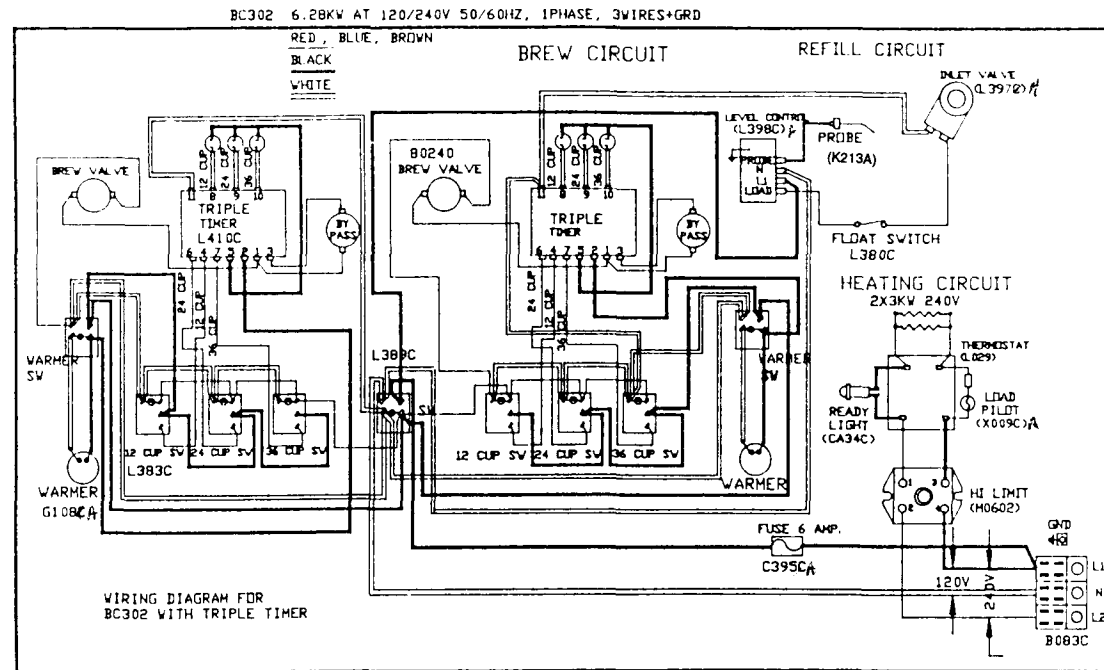
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1	90 Degree Elbow	K021A	46	Hi-Limit Switch	M060A
2	Thermostat Knob	M008A	47	Grommet	M090A
3	Thermostat	L029A	48	Ground Lug Copper	B091A
4	Water Inlet Valve 1 GMP 120V	L397A	49	Spray-Head Adjuster, Right	K244A
5	Heater 3000W/240V	G022A	50	Spray-Head Adjuster, Light	K245A
6	Overflow Tube Assembly	H024A	51	Washer Red Silicon	M197A
7	Indicator Light (BC302)	32004	52	Gasket	M121A
8	Single Timer, 120V (BC2)	L264A	53	Top Warmer Glove Assembly	R590A
	*Triple Timer, 120V/240V (BC301)	L410A	54	3/8" Silicon Tubing (BC302)	M319A
9	Water Level Sensor, 120V	L398A	55	Screw	P811A
10	Water Tank Cover	U801A	56	Tank Gasket	M289A
11	Hi-Level Switch	L380A	57	By-Pass Reducer	H218A
12	Water Level Probe Assembly	K213A		*By-Pass Reducer (BC302)	H221A
13	Hose Barb Elbow 3/8"	K270A	58	Fuse 6 Amps	C395A
14	Water Tank	R556A	59	Logo Plate Fresh Coffee (BC2)	N815A
15	Tower, Base and Top Wrap Assembly	N/A		*Logo Plate Fresh Coffee (BC302)	N823A
16	Hose Barb Elbow	K246A	60	Wingnut	P810A
17	Flanged Coupling 1/4 NPT	K275A	61	Hose	M313A
18	Terminal Block	60113	62	Funnel	97502
19	Power Switch (BC302)	L389A	63	Wire Basket	75057
20	Faucet	D067A			
21	Green Brew Switch, 120V	L383A			
22	Amber Heat Switch, 120V	L390A			
23	Lock Nut	E007A			
24	Spray Cap	E084A			
25	Ready Light	CA34A			
26	Hold Down Bracket	U809A			
27	Starter Socket	B099A			
28	20W Fluorescent Starter	L389A			
29	Leviton Lampholder	B098A			
30	Fluorescent Bulb	CA29A			
31	Clear Plastic Panel	U907A			
32	Dump Valve, 120V	80240			
33	Lock Nut	K048A			
34	Toggle Switch	L069A			
35	Washer	P072A			
36	Screw	P322A			
37	1/4 Flat Washer	P120A			
38	Screw	P013A			
39	Hexnut	P062A			
40	Warmer Element 120V/100W	G108A			
41	Heat Shield	U485A			
42	Fuse Holder	C396A			
43	Legs 4" Adjustable	M005A			
44	Terminal Block	B083A			
45	Ballast 220V	CA28A			

**Note - All parts are common to all machines
except where listed in description**

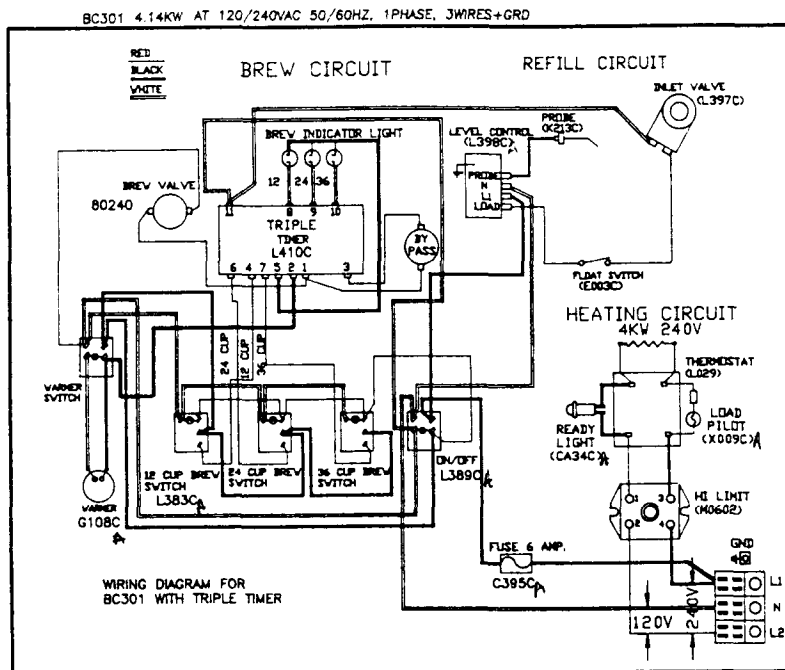
220V/240V Components For Export

4	1 GPM Solenoid	L426A
8	Single Timer (BC2)	L263A
9	Level Control	L399A
19	Power Switch (BC302)	L424A
21	Green Brew Switch	L401A
22	Amber Heat Switch	L400A
32	Dump Valve	80249
40	Warmer Element 100W	G107A
45	50Hz Ballast (BC2)	C045A
	*60HZ Ballast (BC2)	C046A

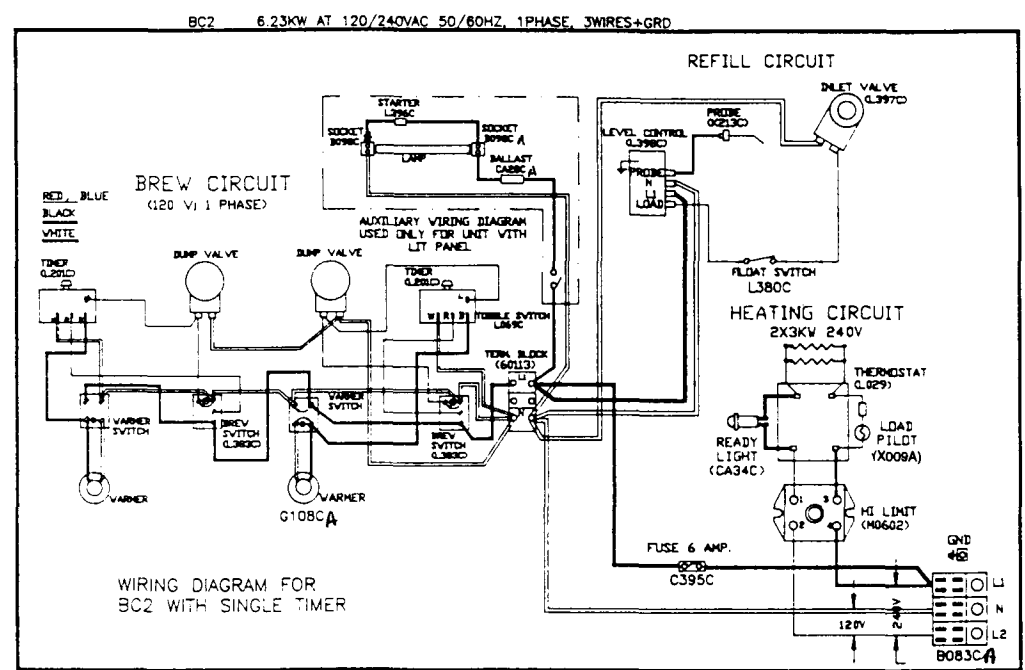




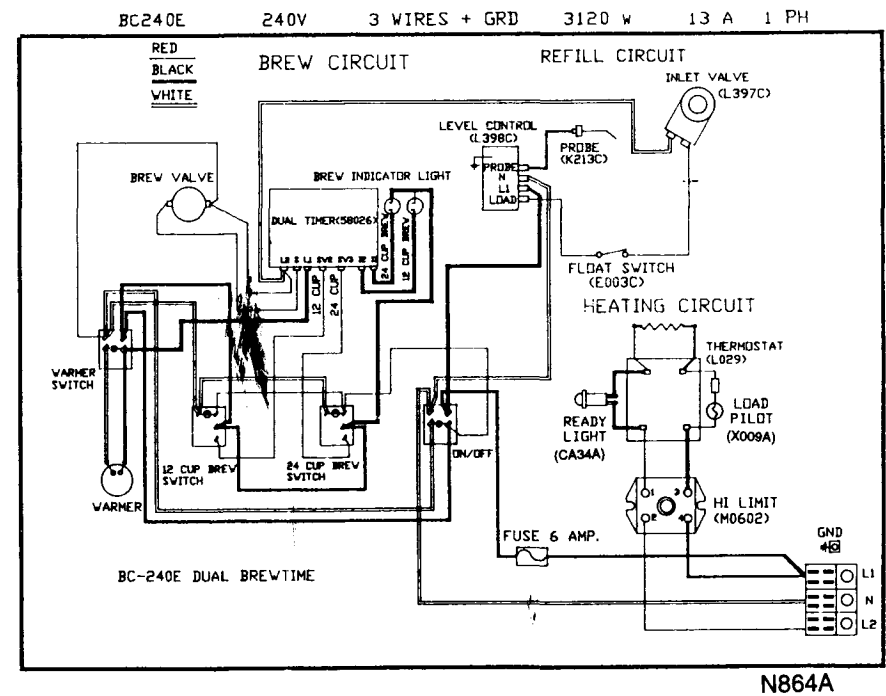
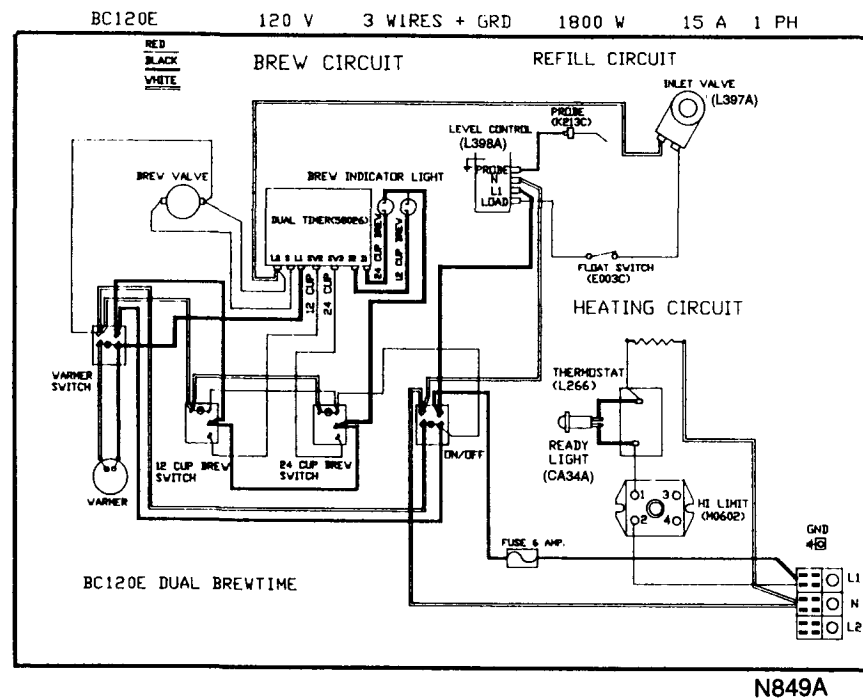
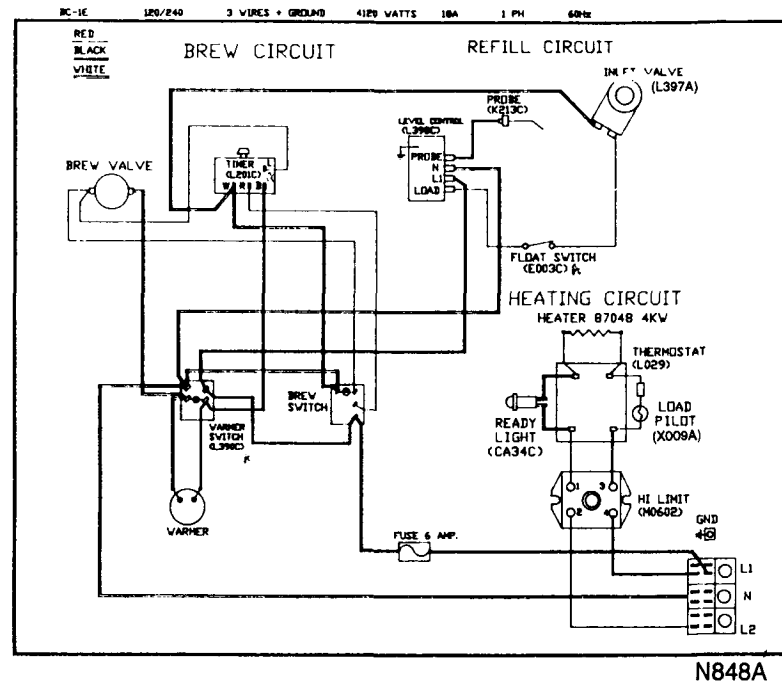
REV. B
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CARE AND MAINTENANCE INSTRUCTIONS

DRAINING OF WATER TANK:

Fast draining of tank is possible by Drain Hose which is located behind the front panel and held in place by a clamp to the side wall.

When draining of tank is required, always disconnect power supply and turn thermostat counterclockwise to the OFF position.

CLEANING:

1. Wipe all exterior surfaces of the unit with a soft, damp cloth using warm water and mild detergent. **WARNING:** Before attempting to clean the Warmer Deck, make sure the Warmer switches are "OFF" and the Warmer Deck has cooled down to room temperature.
2. Clean all interior surfaces, in contact with the substance dispensed, thoroughly. Caked-on residue may have to be soaked before removal. On metal or glass surfaces, stiff bristle brushes may be used.
3. Rinse the cleaned unit thoroughly with warm water and let dry.

SANITIZING:

All food dispensing units should be sanitized periodically. However, all parts or units to be sanitized must be cleaned first.

To prepare a sanitizing solution - ADD 2 OUNCES OF LIQUID CLOROX BLEACH (5.25% CONCENTRATION) TO 1 GALLON OF ROOM TEMPERATURE WATER (70-90°F).

Soak all parts for a minimum of 3 minutes in the sanitizing solution.

NOTE: Always start with an unopened bottle of Clorox bleach since the solution from an opened bottle has a shorter life span.

CARE OF STAINLESS STEEL:

Stainless steel surfaces that come in contact with food substances must be cleaned every day. Many food products contain acid, alkalies, salt and other substances that corrode the stainless steel. In order to prevent the corrosion of the material, proper cleaning and sanitizing must be performed.

When cleaning the stainless steel, only neutral pH cleansers are to be used. Highly acidic or alkaline cleansing agents and chlorinating sanitizing solutions cause corrosion.

DELIMING OF TANK:

Minerals in water also cause corrosion if they are allowed to accumulate. Therefore, the interior walls should be cleaned frequently in order to remove mineral deposits and prevent corrosion from occurring.

TO PREVENT CORROSION DAMAGE:

1. Carrier liners should be cleaned daily.
2. Use only neutral pH cleansers such as dish washing detergents to clean the unit. Do not use cleansers containing alkalies, acids or harsh abrasives.
3. Use mild abrasive nylon or brass brushes for removing coffee deposits. Do not use steel wool, wire brushes or other abrasive tools that will scratch the stainless steel surface.
4. Use recommended sanitizing solutions.
5. Let the unit dry naturally after sanitizing. Do not wipe them. Do not use the unit until completely dry.

WARNING: Do not immerse Carrier into water or use in dishwasher.